
Slide Rule Competition in Texas High Schools

Mike Gabbert

Interscholastic competition is most commonly thought of in the context of athletic endeavors—things like football, basketball, and tennis. Fans, money, and media attention are readily drawn to our “Friday night heroes”. But there is another venue by which Texas high school students test each other’s mettle: the springtime literary events.

In fact the governing body that oversees the athletes in Texas, the University Interscholastic League, was originally formed to administer literary events. Organized in 1910 during “the age of Bryan and Douglas” and the “Golden Age of Oratory”, [1] the first UIL contests held were in speech and debate. It was not until a year later that a sport was added in the form of track and field.

Today’s literary events include the One Act Play, Prose Interpretation, Poetry Interpretation, Debate, Spelling and Vocabulary, Number Sense, Science Contest, and Calculator Applications, among others. [2] From 1943 [3] until 1980 it also included the Slide Rule contest.

The current (1999-2000) school year marks the 20th anniversary of the last Slide Rule Contest.

This contest always involved the same operations: multiplication, division, squares, square roots, cubes, cube roots, and decimal placement using the C, D, A, B, and K scales. The use of the CI scale was encouraged later. Beyond that, the make-up of the contest changed in both the number of problems and the method of grading from the first contests in the 1940s until the contest ended in 1980.

Rules and Scoring Over the Years

Each school participating was permitted to enter up to three students at the district level. Advancement was from district to regional to state competition. First and second places advanced to the next level until the state meet was reached. Contestants could use margins on the actual test booklet for notes and scratch work, but no paper could be brought in for this purpose. The correct answer could only be put in the space provided for it to receive credit.

The first contests consisted of 50 problems with a 30-minute time limit. The first three significant digits plus decimal placement to an accuracy of ± 5 were required for full credit. Five points were awarded for each significant figure and the decimal was worth an additional 10 points for a possible score of 25 for each completely correct answer. Five points were deducted for each problem incorrectly answered or skipped, but any problems not attempted after the last solved or attempted problem were not considered skipped. [4] If the first significant figure was not exact, the problem was completely wrong,

for a five-point deduction.

By the 1970s [5] the contest had evolved into a collection of 75 problems to be completed in 30 minutes. Scoring also changed. The first three significant digits were still required, plus decimal placement, but the point values differed. The maximum value for any completely answered problem was now worth only five points, with the maximum penalty for any missed or skipped problem just one point. For a correct first significant digit, three points were awarded if the decimal was also correct; if the second figure was also correct, a fourth point was awarded; and if all three figures were right along with the decimal, the full five points were awarded. The decimal was worth two points, so if it was missed, but the digits as just described were correct, then the score would be a corresponding two points less. In all cases, the answer had to be correct with an accuracy now of 2 to receive full credit. Again, the first significant digit had to be exact to avoid penalization.

In the event of a tie, a ten-minute tie breaker would be administered. An example I have has 17 problems, which are approximately comparable in difficulty to the final third of the regular test. If, after this tie breaker, there was still a tie, the director would administer another tie breaker or make up a test consisting of 15 problems that could be taken from a regular 75-problem contest. This, too, would be 10 minutes in duration, and the process would continue until a winner was decided.

Strangely enough, during the first regional contest I attended, one of my competitors and I discussed the strategy we should use if we were to face a tie-breaker. We were talking about this while awaiting the results of the contest we had just finished. I had done some training on old tie-breakers and knew what to expect. He had never seen one. I said I would take the problems slowly and deliberately. It was a short test where you could easily make mistakes and wind up with a negative score. Sure enough, he and I had to face off in a tie-breaker. I won with a modest 18 points.

Other Changes

In the 1950s consideration for the addition of problems requiring the trig, log, and log-log scales was dismissed because it was believed it would limit participation in the contest to high school seniors. However, by the mid 1970s it was again receiving some thought, but, alas, the contest was discontinued and replaced by Calculator Applications before this could be done.

In the early years of the contest—with only a few school math clubs participating—there was some doubt if the contest could survive. However, by 1957, over 600 schools across the state sponsored several thousand contestants. [6] Even into the mid-1970s, when the electronic

calculator was quickly displacing the slide rule as the instrument of choice, student participation in the Slide Rule contest was still rising. [7]

The number of problems in the contest soon grew from 50 to 60, but in 1954, it was raised to 75. Prior to the latest change, the difficulty of the problems was such that several district competitions were won with *negative* scores! [8] The addition of 15 problems included both more difficult problems at the end of the test and easier problems at the beginning. This would enable everyone to achieve a positive score, yet provide a challenge that few if any could complete in 30 minutes.

Complaining about this problem, Mrs. Willie Ingels of Austin High School in El Paso was quoted in the November 1948 *Interscholastic Leaguer* as saying, "Only in the last ten problems should all operations appear in the same problem. Tests which are not of graduated difficulty violate psychological principles and are discouraging to students". [9]

Successes and Dynasties

Mrs. Ingels was a very successful slide rule coach in El Paso. In 1945, 1947, and 1948 she coached state champions, and in 1946 had a bronze medalist at the state competition. [10] Another El Paso coach, Ms. Rebekah Coffin, had state winners in 1949 and 1953.

There were other "slide rule dynasties" over the years. Ms. Ellabelle Radford began coaching students for the contest in 1955. During the subsequent ten years her students won 62 medals: 24 first places, 22 second places, 15 thirds, and one fourth. Her school in Quanah, Texas, took first and second place in district competition for ten consecutive years as well as third place for nine of those years. In regional competition, her students recorded nine first places, seven seconds, and five thirds. And at state meets she had five firsts, five seconds, one third, and one fourth. Bob Baucom, the state champ she coached in 1965, scored 339 points, a record high score up to that time. [11]

Another winning school was Spring Hill. [12] Spring Hill took second place at the state meet in 1959 in their division. In 1960, they took both second and fourth place. In 1961, their champion, David Ruggles, took first place with the highest score of all divisions. In 1962, Ruggles again won at state with the second highest score of all divisions. In 1963 and again in 1964, the school took both first and second in their division. They won the third place medal in 1965 and had another contestant who finished in third at the regional meet. Their final year to win state honors was 1966, where they took both first and second places.

Andrews High School also had a strong slide rule program. In 1974, senior Stephanie Fuhrman set an all-time record high score with 359 points. She was a state competitor all four years she was in high school. [13]

Tricks and Strategies

What were some of the tricks and strategies of the

winners? One state champion, 1967 Class AAAA winner Lee Norwood said you have to balance speed and accuracy. The dividing line is 85%. If you have less than 85% accuracy, work on accuracy. If your proficiency is greater than 85%, build speed—complete more problems, then work to bring up your score. The UIL adopted this guideline when advising new slide rule contestants.

Tricks? One shortcut employed by many took advantage of a loophole in the rules. The rules stated only three significant figures were needed plus decimal placement. Contestants who wrote the answer out in standard form (as opposed to scientific notation) would write ones instead of zeros between the three significant figures and the decimal point on the idea they could write the single stroke of the numeral one faster than they could write a zero—figures which would be ignored as only the first three were considered. They would in this manner shave a second or two here and there which would add up over the course of 75 problems. The UIL finally caught on and changed the rules in 1974, imposing a one-point penalty on any problem where this practice was used. In my own experience, I was always instructed to express my answers in scientific notation.

Which Slide Rule to Use

In order to make the contest more equitable, it was suggested that UIL standardize the slide rule used for competition, but in the 1940s when the contest was first started, slide rules were hard to find. Due to the shortage of instruments, this was not done. But as the contest grew and slide rules became more readily available, restrictions were placed on what could be used.

Slide rules prohibited included ones with "special accessories, such as additional indicators or special scales or markings. The use of any non-standard slide rule or non-standard equipment". [14] "Standard" was not defined, but it was understood to include things like decimal keeping cursors and scales as seen in rules like the Deci-Point by Pickett. The only brand of slide rule specifically banned from competition (in the early 1970s) was one called the Accuraspeed [15] slide rule. I have seen no mention of this instrument either in the *JOS* or offered on eBay. If anyone has any information on this instrument, I'd be interested.

Beginning of the End

During the later years of the contest, in the mid- to late 1970s the slide rule was again becoming difficult to find. Colleges and industry no longer favored the "slip stick", choosing, instead, the electronic calculator as a more efficient and more accurate tool. As a result retailers were dropping slide rules from their inventory. Students across the state began finding it more and more difficult to find an instrument to use for training and competition. Even the slide rule produced specifically for this contest was no longer being made and was out of circulation. Dr. John Cogdell, the last director of the Slide Rule contest, described this instrument as "the Ferrari of slide rules" [16]—the Texas Speed Rule (Pickett's

Model 905-ES "A", which had K scales on both the stator and the slide). It was under Cogdell's directorship that the Slide Rule Contest was put to rest and its successor, Calculator Applications, began.

"All the professional slide rules are well made and should last a lifetime in ordinary usage, but in a season or two of contest work, the finish begins to wear so that numbers are hard to read", said Jack Lenhart, who was contest director before Cogdell, in the *Leaguer* for October of 1977. So you can see why the scarcity of new slide rules was a serious problem. Not only was there a demand from new students entering high school, but the veteran slide rulers needed replacements.

In 1978, the UIL had to make arrangements [17] with a local Austin business, the University Co-op, to keep a special inventory of slide rules which could be ordered by phone or mail to be shipped to schools across the state. The two models available were both Pickett rules, the N 1010-ES for immediate shipment, or the N 3-ES, which required several weeks to ship.

Sadly, according to Cogdell, the dies for the Texas Speed Rule were shipped to Mexico, where they were inadvertently destroyed. [18]

Attention Outside the State

The literary contests administered by the UIL were envied and emulated by those outside Texas. "A number of students from other states have requested permission to compete", [19] but they were denied that permission. At least one state began a competition modeled after the Texas contest. This was begun by Superintendent Paul P. McCurley of the Gunnison, Colorado, schools who requested copies of contest rules and test samples to use as a guide until they developed their own system. [20]

The Slide Rule Contest received some long overdue publicity in 1980. The stories only dealt with its demise; it was the final year of competition. Newspapers and television stations across the state featured stories about the last state slide rule meet. It even received mention in newspapers up and down the Eastern seaboard from New York to Florida. [21]

Closing Remarks

If you participated in such a competition in a state outside Texas, I would be interested in hearing about the details of your experience. If you competed in the Texas UIL Slide Rule Contest, I'd like to hear from you, too. I participated during my junior and senior years during the early 1970s at two district, two regional, and one state competition as well as several practice and invitational meets. These contests were the genesis of my interest in and collection of slide rules.

My interest in this look at the UIL's Slide Rule Contest stems from my own participation in the contest, but the details of its history have mainly been garnered from the archives of the *Interscholastic Leaguer* and the *Leaguer*, publications of the University Interscholastic League in Austin, Texas. Many thanks to the UIL and Mr. Bobby Hawthorne, Director of Academics for the UIL, for making these resources available to me.

References

1. *Interscholastic Leaguer*, October 1972
2. For anyone interested, a complete list of current UIL contests with rules can be found in the 1999-2000 Constitution and Contest Rules at www.utexas.edu/admin/uil/admin/rules/index.html
3. *Interscholastic Leaguer*, February 1957
4. _____, October 1943
5. *Constitution and Contest Rules, Interscholastic League*, 1978, pp. 102-110
6. *Interscholastic Leaguer*, February 1957
7. _____, September 1976
8. _____, February 1957
9. _____, November 1948
11. _____, October 1965
12. _____, March 1967
13. *Leaguer*, November 1974
14. *Constitution and Contest Rules, Interscholastic League*, 1978, pp. 102-110
15. *Interscholastic Leaguer*, October 1971
16. *Abilene (Texas) Reporter-News*, May 8, 1980
17. *Leaguer*, April 1978
18. *Abilene (Texas) Reporter-News*, May 8, 1980
19. *Interscholastic Leaguer*, February 1957
20. _____, December 1958
21. *Leaguer*, December 1980

